

What is Claimed:

- 1 1. An endoluminal device comprising:
- 2 a first member comprising a first trunk portion, a first midsection comprising
- 3 a first opening, and a first leg portion;
- 4 a second member comprising a second trunk portion, a second midsection
- 5 comprising a second opening, and a second leg portion;
- 6 wherein the device has an assembled configuration in which the first member and second
- 7 member are interlocked with one another with the second trunk portion coaxially contained
- 8 within the first trunk portion, the second leg portion protruding through the first opening,
- 9 and the second opening facing the first leg portion.
- 1 2. The endoluminal device of claim 1, wherein the second midsection
- 2 further comprises a leg stump portion that protrudes into the first leg portion of the first
- 3 member in the assembled configuration.
- 1 3. The endoluminal device of claim 1, wherein the first member further
- 2 comprises a seal ring.
- 1 4. The endoluminal device of claim 1, wherein each of the first member
- 2 and the second member further comprises a stent having a covering inside, outside, or inside
- 3 and outside of the stent.
- 1 5. The endoluminal device of claim 4, wherein the covering comprises a
- 2 textile, a plastic, or a combination thereof.
- 1 6. The endoluminal device of claim 4, wherein the covering comprises a
- 2 knit or woven textile.
- 1 7. The endoluminal device of claim 4, wherein the covering comprises
- 2 ePTFE or urethane.
- 1 8. The endoluminal device of claim 5, wherein each of the stents of the
- 2 first member and the second member comprises an outside ePTFE covering.

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1 9. The endoluminal device of claim 8, wherein each of the stents further
2 comprises an inside ePTFE covering.

1 10. The endoluminal device of claim 8, wherein each of the stents further
2 comprises an additional covering over the outside ePTFE covering.

1 11. The endoluminal device of claim 10, wherein the additional covering
2 comprises a textile covering.

1 12. The endoluminal device of claim 11, wherein the textile covering
2 comprises a knit covering.

1 13. The endoluminal device of claim 11, wherein the textile covering is
2 stretchable.

1 14. The endoluminal device of claim 11, wherein the textile covering
2 comprises PET or polyester yarn.

1 15. The endoluminal device of claim 9, wherein each of the stents further
2 comprises a knit PET or polyester yarn covering over the outside ePTFE covering.

1 16. The endoluminal device of claim 4, wherein the first member further
2 comprises an uncovered portion of the stent.

1 17. The endoluminal device of claim 16, wherein the device is adapted to
2 be mounted in an aorta and the uncovered portion is adapted to be located at an intersection
3 of a renal lumen with the aorta.

1 18. The endoluminal device of claim 1, wherein each of the first member
2 and the second member has a tapered diameter.

1 19. The endoluminal device of claim 1, wherein each of the first leg
2 portion and the second leg portion has a constant diameter.

1 20. The endoluminal device of claim 1, wherein the second trunk portion
2 is not distally coextensive with the first trunk portion.

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1 21. The endoluminal device of claim 20, wherein the first member
2 comprises an uncovered portion located distally of a distal end of the second member.

1 22. The endoluminal device of claim 4, wherein the first member
2 comprises a partial inside covering and the second member comprises an outside covering,
3 wherein the first member comprises an interlocking portion adapted to contact the outside
4 covering of the second member, the interlocking portion having no inside covering.

1 23. The endoluminal device of claim 1, wherein the first opening
2 comprises a greater open area than the second opening.

1 24. The endoluminal device of claim 1, wherein each of the first member
2 and the second member has an essentially equivalent compressed profile.

1 25. A modular endoluminal device for deployment in a body lumen
2 comprising a main lumen, a first branch lumen, a second branch lumen, and an internal fluid
3 flowing in a first direction from the main lumen into the first branch lumen and the second
4 branch lumen, the device comprising a first member for directing the fluid from the main
5 lumen into the first branch lumen and a second member for directing the fluid from the main
6 lumen into the second branch lumen, wherein the first member and the second member are
7 adapted to interlock together such that the fluid flow forces the second member against the
8 first member in a sealing relationship.

1 26. The device of claim 25, wherein the second member comprises at least
2 one impingement area on which the fluid flow impinges to force the second member against
3 the first member.

1 27. The endoluminal device of claim 25, wherein the first member
2 comprises a first trunk portion, a first midsection comprising a first opening, and a first leg
3 portion; the second modular member comprises a second trunk ~~portion~~, a second midsection
4 comprising a second opening, and a second leg portion; and the first member and second
5 member interlock with one another in an assembled configuration in which the second trunk
6 portion is coaxially contained within the first trunk portion, the second leg portion protrudes
7 through the first opening, and the second opening faces the first leg portion.

10010628-110701

1 28. The endoluminal device of claim 26 wherein the second midsection
2 further comprises a leg stump portion that protrudes into the first leg portion of the first
3 member in the assembled configuration.

1 29. An endoluminal device comprising:

2 a first member comprising a first trunk portion, a first midsection comprising
3 a first opening, and a first leg portion; and

4 a second modular member comprising a second trunk portion, a second
5 midsection comprising a second opening, and a second leg portion, wherein the first member
6 and second member are interlocked with one another with the second trunk portion coaxially
7 contained within the first trunk portion, the second leg portion protruding through the first
8 opening, and the second opening facing the first leg portion.

1 30. A system for deployment of an endoluminal device, the system
2 comprising:

3 the endoluminal device comprising a first member having a first trunk portion,
4 a first midsection comprising a first opening, and a first leg portion; and a second member
5 having a second trunk portion, a second midsection comprising a second opening, and a
6 second leg portion;

7 a first introducer for deploying the first member into a body lumen and having
8 a first profile; and

9 a second introducer, having a second profile essentially identical to the first
10 profile, for deploying the second member into the body lumen;

11 wherein the device has an assembled configuration in which the first member
12 and second member are interlocked with one another with the second trunk portion coaxially
13 contained within the first trunk portion, the second leg portion protruding through the first
14 opening, and the second opening facing the first leg portion.

1 31. A method of deploying an endoluminal device in a deployment location
2 in a branched lumen comprising a main lumen, a first branch lumen, and a second branch
3 lumen, the endoluminal device comprising a first member comprising a first trunk portion, a

10010628-110701

4 first midsection comprising a first opening, and a first leg portion; and a second member
5 comprising a second trunk portion, a second midsection comprising a second opening, and a
6 second leg portion; the method comprising the steps of:

7 (a) inserting a first introducer containing the first member into the
8 branched lumen from a first proximal location;

9 (b) deploying the first member with the first trunk portion in the main
10 lumen and the first leg portion in the first branch lumen;

11 (c) inserting a second introducer containing the second member into the
12 branched lumen from a second proximal location;

13 (d) deploying the second member such that the second member is
14 interlocked with the first member in an assembled configuration with the second trunk
15 portion coaxially contained within the first trunk portion, the second leg portion protruding
16 through the first opening into the second branch lumen, and the second opening facing the
17 first leg portion.

1 32. The method of claim 31 wherein at least one of the first proximal
2 location and the second proximal location is located downstream of the main lumen.

1 33. The method of claim 31 wherein at least one of the first proximal
2 location and the second proximal location is located upstream of the main lumen.

1 34. The method of claim 31 wherein the endoluminal device further
2 comprises a stent having a covering inside, outside, or inside and outside of the stent, and an
3 uncovered portion of the stent, and the branched lumen further comprises at least a third
4 branch upstream of the first branch and second branch, the method further comprising
5 aligning the device such that the uncovered portion is located at an intersection of the third
6 branch with the main lumen.

1 35. The method of claim 31 wherein the method comprises deploying the
2 device in an aorta, wherein the first branch and the second branch each comprise iliac
3 arteries.

1 36. The method of claim 34 wherein the method comprises deploying the
2 device in an aorta, wherein the first branch and the second branch each comprise iliac
3 arteries and the third branch comprises a renal artery.

1 37. The method of claim 31 wherein the second midsection further
2 comprises a leg stump portion that protrudes into the first leg portion of the first member in
3 the assembled configuration and a crotch connecting the leg stump portion to the second leg
4 portion, the assembled configuration comprising a configuration wherein the second member
5 crotch abuts the first member in a final resting position, the method further comprising
6 deploying the second member slightly upstream of the final resting position and allowing
7 endoluminal fluid flow to move the second member downstream into the final resting
8 position.

1 38. The method of claim 31 wherein the first member comprises a partial
2 inside covering and the second member comprises an outside covering, the first member
3 comprising an interlocking portion having no inside covering, wherein the method further
4 comprises deploying the second member such that the outside covering of the second member
5 is in contact with the interlocking portion of the first member.

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